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What is claimed is:

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1. A vehicle AC generator comprising:

- a rotor having a field coil;
- a stator having an armature coil;
- a frame for supporting said rotor and stator;
- a rear cover fixed to said frame, said rear cover having an air intake window;
- a pair of C-shaped positive and negative cooling fins having a common cutout section at the middle thereof thereby forming an accommodation space between said frame and said rear cover, said cooling fins being fixed to said frame to overlap each other in an axial direction;
- a plurality of positive and negative rectifier elements respectively fixed to said pair of positive and negative cooling fins;
- a pair of brushes for supplying field current to said rotor;
- a brush-holder, disposed in said accommodation space, for holding said pair of brushes;
- a connector case disposed in said accommodation space radially outside said brush holder so as to form a cooling air passage connecting said air intake passage around said connector case, said connector case having a terminal for transmitting and receiving electric signals; and
- an IC regulator, disposed in said cooling air passage around said connector case to face said rear cover, for controlling output voltage of said armature coil, said IC regulator having a heatsink disposed opposite said air intake window of said rear cover.

2. The AC generator as claimed in claim 1, wherein

said IC regulator is disposed between said connector case and said rear cover.

3. The AC generator as claimed in claim 1, wherein

said IC regulator is disposed between said brush holder and said rear cover.

4. The AC generator as claimed in claim 1, wherein

said heatsink of said IC regulator is disposed closer to said rear cover than said cutout section.

5. The AC generator as claimed in claim 1, wherein

said heatsink of said IC regulator is disposed radially outside said connector case.

6. The AC generator as claimed in claim 1, wherein

said cutout section includes an axial passage for conducting cooling air that has passed the outside surface of said IC regulator.

7. The AC generator as claimed in claim 1, wherein

said metal heat sink of said IC regulator has a plurality of projections.

8. The AC generator as claimed in claim 1, wherein

said brush holder is fastened to at least one of said connector case, said cooling fin unit and said frame so that said brush holder can be fixed at a preset position.

9. The AC generator as claimed in claim 1, further comprising:

a noise suppressing capacitor disposed in said cutout section.

10. The AC generator as claimed in claim 1, wherein  
said IC regulator comprises a one chip IC that includes a power transistor for  
controlling said field current.

11. A vehicle AC generator comprising:

a rotor having a field coil and a pair of slip rings connected to said field coil;

a stator having an armature coil;

a frame for supporting said rotor and stator;

a rear cover fixed to said frame, said rear cover having an air intake window;

a rectifying unit including a pair of positive and negative cooling fins and a plurality  
of positive and negative rectifier elements respectively fixed to said pair of positive and  
negative cooling fins, said pair of cooling fins having a common cutout section at the middle  
thereof thereby forming an accommodation space between said frame and said rear cover;

a brush unit including a pair of brushes in contact with said pair of slip rings and a  
brush-holder for holding said pair of brushes, said brush holder being disposed in said  
accommodation space; and

a connector case disposed in said accommodation space radially outside said brush  
holder so as to form a cooling air passage connecting said air intake window around said  
connector case, said connector case having a terminal for transmitting and receiving electric  
signals;

an IC regulator, disposed in said cooling air passage around said connector case to  
face said rear cover, for controlling output voltage of said armature coil, said IC regulator  
having a heatsink disposed opposite said air intake window of said rear cover.

12. A vehicle AC generator comprising:

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a rotor having a field coil and a pair of slip rings connected to said field coil;

a stator having an armature coil;

a frame for supporting said rotor and stator;

a rear cover fixed to said frame, said rear cover having an air intake window;

a rectifying unit including a pair of positive and negative cooling fins and a plurality of positive and negative rectifier elements respectively fixed to said pair of positive and negative cooling fins, said pair of cooling fins having a common cutout section at the middle thereof thereby forming an accommodation space between said frame and said rear cover;

a brush unit including a pair of brushes in contact with said pair of slip rings and a brush-holder for holding said pair of brushes, said brush holder being disposed in said accommodation space;

a connector case disposed in said accommodation space radially outside said brush holder, said connector case having a terminal for transmitting and receiving electric signals; and

an IC regulator having a heatsink for controlling output voltage of said armature coil; wherein

said connector case is disposed in said accommodation space so as to form a cooling air passage connecting said air intake window around said connector case;

said IC regulator is disposed in said cooling air passage around said connector case to face said rear cover; and

said heatsink is disposed opposite said air intake window of said rear cover.

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